

CLAIMS

What is Claimed is:

1 1. A refrigeration system having:
2 a closed fluid circuit serially including a screw compressor, a discharge
3 line, a condenser, an expansion device, a chiller and a suction line leading back to said
4 compressor;
5 water passing through said chiller in a heat exchange relationship and
6 being cooled;
7 said compressor being unloaded solely by regulating the speed of said
8 compressor;
9 motor means for driving said compressor;
10 means for varying the speed of said motor means by controlling the
11 frequency of electrical current supplied to said motor;
12 means for providing cooling to said means for varying the speed;
13 means for sensing the temperature of water leaving said chiller;
14 means for controlling said means for varying the speed responsive to
15 the sensed temperature of water leaving said chiller.

1 2. The refrigeration system of claim 1 wherein liquid refrigerant
2 from said condenser is supplied by said means for providing cooling to said means for
3 varying the speed of said motor.

1 3. The refrigeration system of claim 2 wherein liquid refrigerant
2 used to provide cooling to said means for varying the speed is at least partially
3 evaporated and supplied to said chiller.

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1 4. The refrigeration system of claim 1 wherein said means for
2 controlling said means for varying the speed acts solely responsive to the sensed
3 temperature of water leaving said chiller.

1 5. The refrigeration system of claim 1 wherein said means for
2 varying the speed of said motor has a constant output over a range of frequency and
3 voltage inputs.

1 6. A refrigeration system having:
2 a closed fluid circuit serially including a screw compressor, a discharge
3 line,
4 a condenser, a first expansion device, an economizer, a second expansion device, a
5 chiller and a suction line leading back to said compressor;
6 a branch line connected to said economizer and extending into said
7 compressor;
8 water passing through said chiller in a heat exchange relationship and
9 being cooled;
10 said compressor being unloaded solely by regulating the speed of said
11 compressor;
12 motor means for driving said compressor;
13 means for varying the speed of said motor means by controlling the
14 frequency of electric current supplied to said motor;
15 means for providing cooling to said means for varying the speed;
16 means for sensing the temperature of water leaving said chiller;
17 means for controlling said means for varying the speed responsive to
18 the sensed temperature of water leaving said chiller.

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